

Natural Resources Commission Meeting

NRC Policy Committee on
Wildlife & Fisheries

April 10, 2014



Proposed Orders

- NRC – For Action
 - Field Dog Trials at Allegan State Game Area (WCO Amendment No. 3 of 2014)
 - Bear License Quotas (WCO Amendment No. 4 of 2014)
 - Elk Regulations and License Quotas (WCO Amendment No. 5 of 2014)



NRC Policy Committee on Wildlife and Fisheries

- Fisheries Division Update
- Wildlife Division Update
- Wildlife Annual Report
- White-Nose Syndrome Update





Department of Natural Resources

Fisheries Division Update

April 10, 2014

Jim Dexter, Chief

Resource Accolades

- 50 best tailwaters
 - Muskegon
- TU's 100 best trout streams
 - Au Sable
 - Manistee
 - Little Manistee
 - Pere Marquette



Good to Know

- Steelhead, walleye, musky egg takes delayed
- Fly fishing weblink
- Red Cedar River stocking
- Lake Huron fisheries workshops
 - Port Huron April 9
 - Alpena April 22
 - Cedarville April 23



Crucial Conversations

- Conversations and Coffee
- Northern Lake Michigan lake trout regulations
- Lake Erie Daily Bag Limit for walleye



Crucial Conversations

- Lake Michigan yellow perch conference
- Coldwater Resources Steering Committee
 - Steelhead bag limits
 - Brook trout size limits
 - Type 2
 - Type 4



Thank you!

www.michigan.gov/fishing



Wildlife Division Update



**Russ Mason, Chief
Wildlife Division
April 10, 2014**



NLP Deer Habitat Improvement Grant Program

- Deer Private Landowner Assistance Network (PLAN)
- Goals:
 - Produce on the ground, tangible deer habitat improvements on private land
 - Form partnerships between the DNR, sportsmen, conservation districts, and other conservation organizations
- Total of \$50,000
- Competitive grant program
 - Applicants will request funds between \$2000-\$10,000
 - Target Area of 6 counties in the NLP for the first year: Alcona, Alpena, Crawford, Montmorency, Oscoda and Presque Isle
 - A target area will focus habitat work on areas that have an identified need and have a greater impact on the landscape than spreading it out across the entire region
 - Application period began April 1st and closes May 14th with successful applicants being notified by May 31st



Annual Report

- Wildlife Division Annual Report FY 2013
- Highlighting work related to the GPS
 - From partnerships to research
- Outlines how much we spend for each goal
- Includes MBFB sheet that ties in GPS goals



Thank You

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White-nose Syndrome in Michigan

Little brown bat from Mackinac Co., 3/24/14. Photo: J. Melotti, DNR-WDL



Dan O'Brien, Veterinary Specialist
Wildlife Disease Laboratory
April 10, 2014



What is White-nose Syndrome (WNS)?

- Disease affecting hibernating colonial bats
- Named for the white fungus (*Pseudogymnoascus destructans*) that appears on the skin
- Associated with large die-offs of bats in eastern North America



Photo: A. Hicks, NYDEC



WNS: Bats as hosts



- Long-lived: 10-30 years
- Longevity generally inversely related to ability to reproduce
 - MI bats typically raise only 1 or 2 pups/year
- Consequence is that bat populations are ill-equipped to absorb and recover from mass mortality



WNS: The host

All 5 colonial species native to MI known to be affected

- Little brown bat (*Myotis lucifugus*)
- Northern long-eared bat (*M. septentrionalis*)
- Indiana bat (*M. sodalis*; Fed. endangered)
- Northern pipistrelle (*Perimyotis subflavus*)
- Big brown bat (*Eptesicus fuscus*)
- Susceptibility, progression differ by species and/or microclimate (Langwig et al., 2012, *Ecol. Lett.* 15:1050-1057)



WNS: The fungus

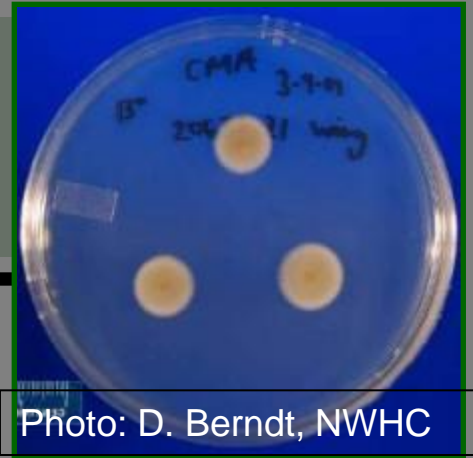


Photo: D. Berndt, NWHC

- *Pseudogymnoascus destructans* is proven causal agent (Lorch et al. 2012, *Nature* 480:376)
- Single genotype, introduced from Europe, in all likelihood by human transport, responsible for entire outbreak (Rajkumar et al., 2011, *Emerg. Infect. Dis.* 17:1273-1276)

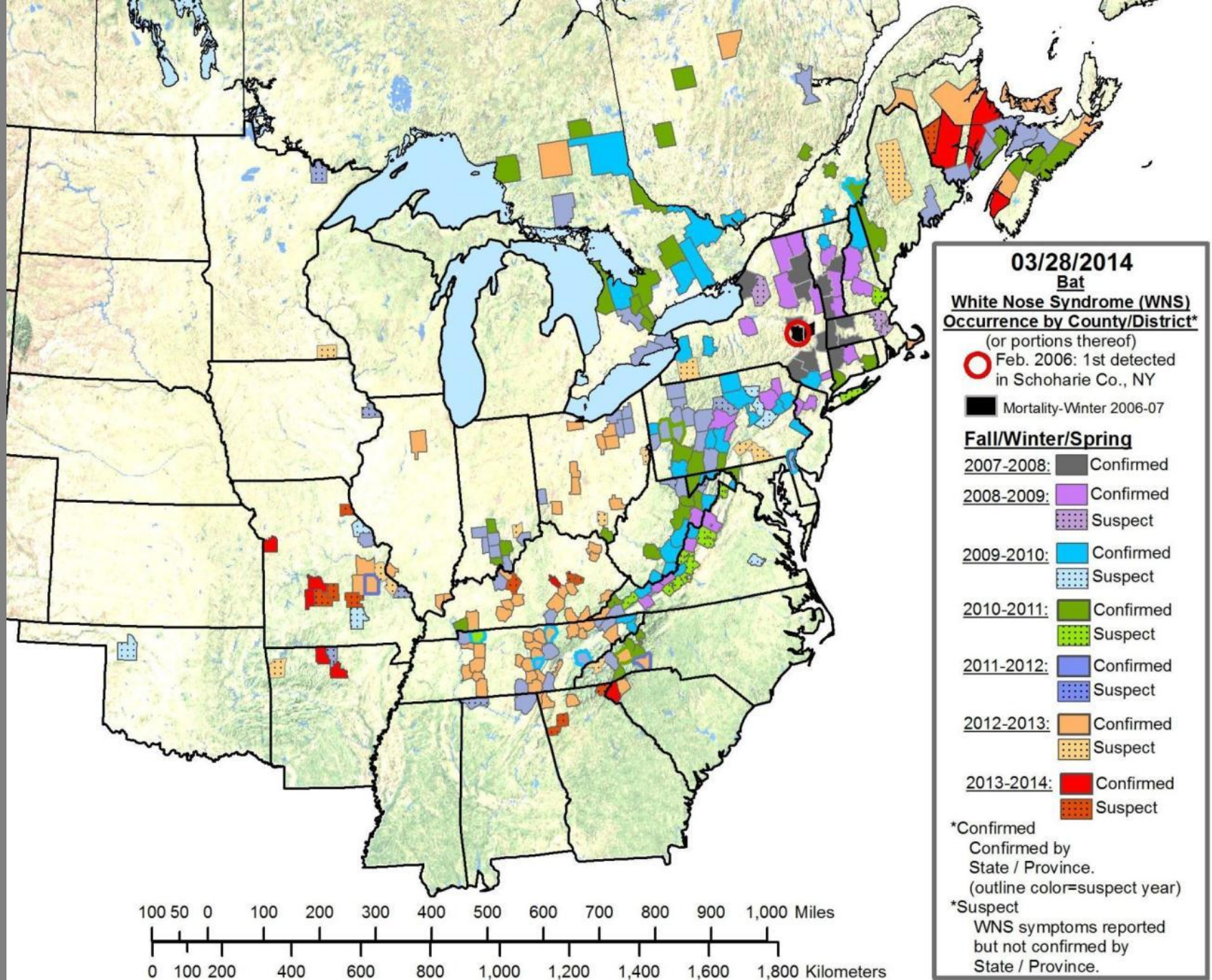


WNS: The environment

- Colonial bat species hibernate where temperatures are close to, but above, freezing
- Such conditions are perfect for the growth and long term persistence of *P. destructans*

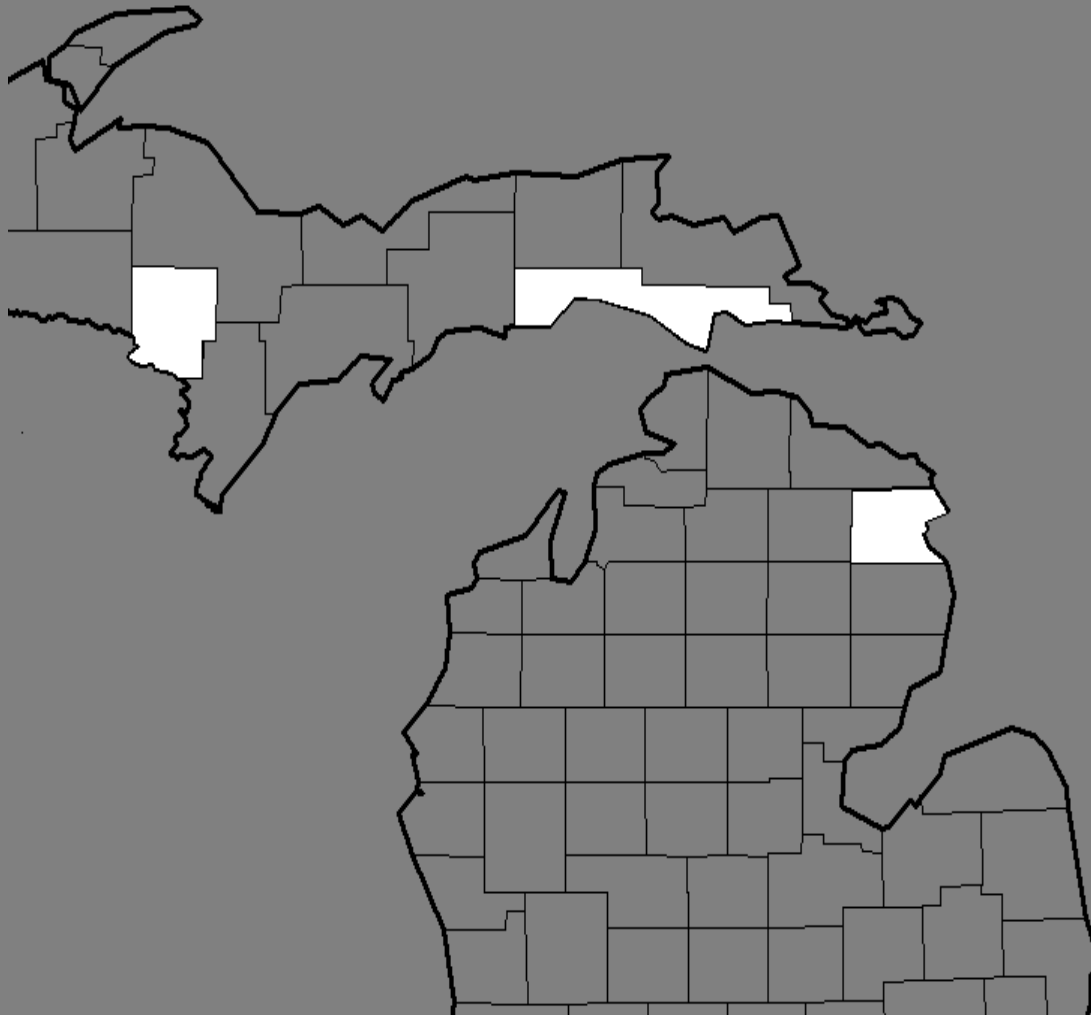


Photo: D. O'Brien, MDNR



Map by: Cal Butchkoski, PA Game Commission

White-Nose Syndrome Occurrence by County in Michigan



WNS: Transmission & spread

- Bat-to-bat:
 - Bats transmit fungus to each other by direct (touching) and indirect (environmental contamination) contact
 - Likely transport fungus to new sites during fall movements (swarming)
- Human-assisted:
 - Fungus contaminates clothing, boots and equipment of cavers, researchers and tourists who enter contaminated caves, mines
 - Humans move fungus to new sites



WNS: The Disease



Little brown bat from Alpena Co., 3/24/14.
Photo: D. O'Brien, DNR-WDL

- Fungus invades skin
 - Irritation
 - Alters ability to regulate water balance
- Bats repeatedly arouse from hibernation, use up stored fat more rapidly than normal ([Reeder et al. 2012, PLoS One 7:10](#))
- Eventually arouse permanently in late winter before food (insects) available, starve (or die of metabolic dysfunction)



WNS: Ecological effects

- Declines in summer abundance
 - 72%-78% reduction post WNS in MA
(Brooks 2012, *Biodiversity Conserv.* 20:2537-2541) and
NY (Dzal et al. 2011, *Biol. Lett.* 7:392-394)
- Estimated 660-1320 metric tons of insects
(mostly crop and forest pests) may no
longer be consumed in WNS areas
(Boyles et al. 2011, *Science* 332:41-42)



Testing of WNS suspects

- Ongoing hibernacula surveillance by Dr. Al Kurta/Steve Smith, Eastern MI Univ.; collectors of all suspects
- Delivered to DNR Wildlife Disease Lab (WDL); examined and submitted for initial testing to MI State Univ. Diagnostic Center for Population and Animal Health (DCPAH)
- Suite of tests (polymerase chain reaction [PCR], fungal culture, histopathology) used
- Presumptive positives confirmed via same tests at National Wildlife Health Center (NWHC) in Madison, WI



MI WNS/*P. destructans* positive bats

- Dickinson County (inactive iron ore mine)
 - Male Little Brown Bat (LBB) collected 2/20/14
 - Submitted for testing 2/27/14
 - Final DCPAH results 3/19/14
 - PCR positive for *P. d.* with DNA sequence confirmation
 - Histopathology consistent with WNS
 - Fungal culture negative for *P. destructans*
 - Shipped to NWHC 3/24/14
 - Confirmed PCR positive 3/28/14
 - Confirmed positive on histopathology 4/4/14
 - Fungal culture currently pending



MI WNS/*P. destructans* positive bats

- Mackinac County (privately-owned cave)
Alpena County (inactive quarry)
 - LBB collected 3/22/14 (Alpena Co. [2 males, 1 female])
and 3/23/14 (Mackinac Co. [1 male])
 - Delivered 3/23/14, submitted for testing 3/24/14
 - DCPAH results as of 4/2/14
 - PCR positive for *P. destructans* in all four bats
 - Histopathology diagnostic for WNS (2 bats, 1 from each site) and
consistent with WNS (2 bats, Alpena site)
 - Fungal culture for *P. destructans* pending
 - All four bats shipped to NWHC 4/1/14
 - All confirmed PCR positive 4/4/14
 - Histopath and fungal culture pending



WNS: So what now? The next steps

- Gate winter hibernacula to protect bats from human contamination/disturbance
 - 22 of the 27 largest hibernacula in the state (housing ~272,000 bats) already gated





Photo: A. Kurta, EMU



Photo: A. Kurta, EMU

WNS: So what now? The next steps

- Gate winter hibernacula to protect bats from human contamination/disturbance
 - 22 of the 27 largest hibernacula in the state (housing ~272,000 bats) already gated
- Land Use Order of the Director prohibiting entry to caves and abandoned mines within department-administered land and facilities



WNS: So what now? Next steps

- Outreach/education with partners
 - Bat ecology
 - Implementing decontamination to minimize human-assisted spread
- Continue winter hibernacula surveys with Dr. Al Kurta/Steve Smith, EMU
 - Discover/identify/monitor important hibernacula for conservation
 - Assess severity & spread of WNS, facilitate research



MI WNS response plan

- http://www.michigan.gov/documents/emergingdiseases/MichiganWNSPlanFINAL122010_342261_7.pdf

Healthy little brown bats, Dickinson Co. Photo: D. O'Brien, MDNR



Thank You



www.michigan.gov/wildlivediseases

